

DEFENSE THREAT REDUCTION AGENCY



Making the World Safer

***Making the World Safer:
The Defense Threat Reduction Agency***

***WMD Assessment & Analysis Center
(WMDAAC)***

Al Graziano

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 01 OCT 2005		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Making the World Safer: The Defense Threat Reduction Agency WMD Assessment & Analysis Center (WMDAAC)				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Defense Threat Reduction Agency DTRA/TDOA				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES See also ADM001851, Proceedings of the 2003 Joint Service Scientific Conference on Chemical & Biological Defense Research, 17-20 November 2003. , The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 31	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Outline

- Introduction to DTRA
- WMD Assessment and Analysis Center
 - Weapons of Mass Effect (WME) Battle Lab
- Transformation Planning Guidance
- Distributed Continuous Experimentation Environment (DCEE)
- Joint Operational Effects Federation (JOEF)



Making the World Safer

The Strategic Challenge of the New Millennium

*To reduce the threat
of weapons of mass destruction
as complex security issues
continue to challenge our nation*

**“The Defense Threat Reduction Agency
safeguards America and its friends from weapons
of mass destruction by reducing the present threat
and preparing for the future threat.”**



Making the World Safer

Full spectrum of tools to reduce the present threat and prepare for future threats

Arms Control:

Inspecting threats and stopping them at national borders

Threat Reduction:

*Dismantling the former Soviet nuclear arsenal in place and
eliminating Iraqi weapons of mass destruction*

Technology Development:

Developing, testing, fielding offensive/defensive technologies

Chemical and Biological Defense:

Assuring operations in hostile environments

Combat Support:

Assessing vulnerabilities, assuring the nuclear deterrent

→ ***Making the World Safer***



Making the World Safer

TD's WMD Assessment and Analysis Center (WMDAAC)

Bridge WMD modeling & simulation technology to user needs, emphasizing physics-based weapon effects.



Educate customers on policy, doctrinal and operational issues related to WMD.



Enable the warfighter with WMD analysis & assessment technology in education, training, exercises and live operations.

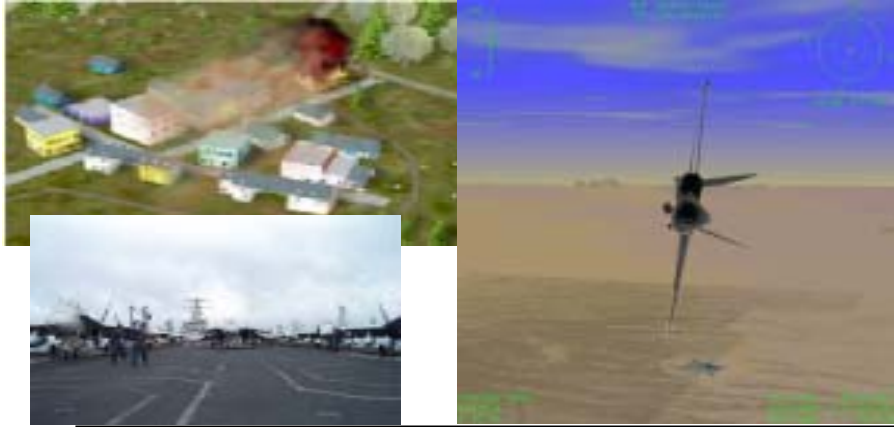


Guide the development of WMD modeling technology to best support the DoD M&S Master Plan regarding analysis, training & system acquisition (test & evaluation).



MSW/EA/UK-19423 Oct 98 #15

Project **Operational Support Technology**



Approach

- Exploit new collaboration technologies for projection of DTRA tools
- Establish a WME-focused operations research/analysis and weapons effects M&S capability in the WME Battle Lab
- Develop robust CBRN/E M&S infrastructure for optimization of effects-based strategies to defeat WMD
- Validate, verify, and certify physics based simulations for C4ISR systems

Objectives

- Project DTRA support to warfighter and homeland defense community
 - Provide WME consequence prediction & analysis tools
 - Convey critical info to decision-makers through distributed interactive systems
 - Participate in appropriate ACTDs e.g. CINC 21, C-CINC 21, HLS C2 ACTD

Deliverables

- WME Knowledge Layer Subsystem (KLSS)
- Weapons Analysis Lethality Tool Set (WALTS)
- CBRNE Federation Object Model
- Homeland Security C2 ACTD Services
- Exercise Support (white cell/experimentation) to Ulchi Focus Lens, Millennium Challenge Series 02-07, Unified Defense, and Determined Promise
- Redundant alternate ops/analysis support center enabling



Making the World Safer

WMD Assessment and Analysis Center (WMDAAC) ***aka DTRA/TDOA***

Mission: Bridge WMD modeling & simulation technology to customer needs, with physics-based weapon effects

➤ Provide Reachback Technology

- **Combatant Commanders, Services, Agencies, First Responders**
- **Secure, Web based Internet Connectivity**
- **Websites, Links & Data Repositories**
- **WE Models, Consequence Management Tools**
- **Subject Matter Experts**
- **Common Operational Picture**

➤ WME Battle Lab

- **Collaborative Ops Research**
- **Wargaming**
- **Technical Engineering**
- **Testing & Training**
- **Facilitate M&S Development & Standards**



Making the World Safer



Center for Special Weapons Effects, NBC Threats, Technology, Transfer, and Resources

Home

[Home](#)

[User](#)

[Search](#)

[FAQ](#)

[Site Map](#)

[Help](#)

[Calendar](#)

[News](#)

[Tools](#)

[Focus Pages](#)

[Library](#)

[Databases](#)

[Collaboration
Center](#)

[About WMDAAC](#)

[Contact CNTTR](#)

[CNTTR Support](#)

[Security & Privacy](#)



[News](#)



[User](#)



[Tools](#)



[Focus Pages](#)



[Library](#)



[Databases](#)

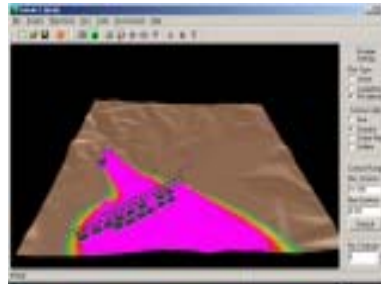


[Collaboration Center](#)



WALTs

**Weapons Analysis Lethality
Tool Set**



IMPACT

**Integrated Modeling Platform for Advanced
Computational Technologies**



DCTS

Defense Collaboration Tool Set



CNTTR

**Center for Special Weapons
Effects, NBC Threats, Technical
Transfer and Resources**



CoBRA

**Chemical and Biological
Response Aid**

WMD Assessment and Analysis Center- Activities/Projects

- Evaluate the application of emerging technologies and concepts to enhance warfighter capabilities against WMD threats
- Provide analytical support to ACTDs, military exercises, experiments, and demonstrations.
- Evaluate CONOPS and identify methods to mitigate effects of the use of CBRNE
- Support analysis of alternatives for acquisition programs, and conduct cost benefit/other studies



COP

Common Operational Picture



ASOCC

**Area Security Operations
Command and Control**



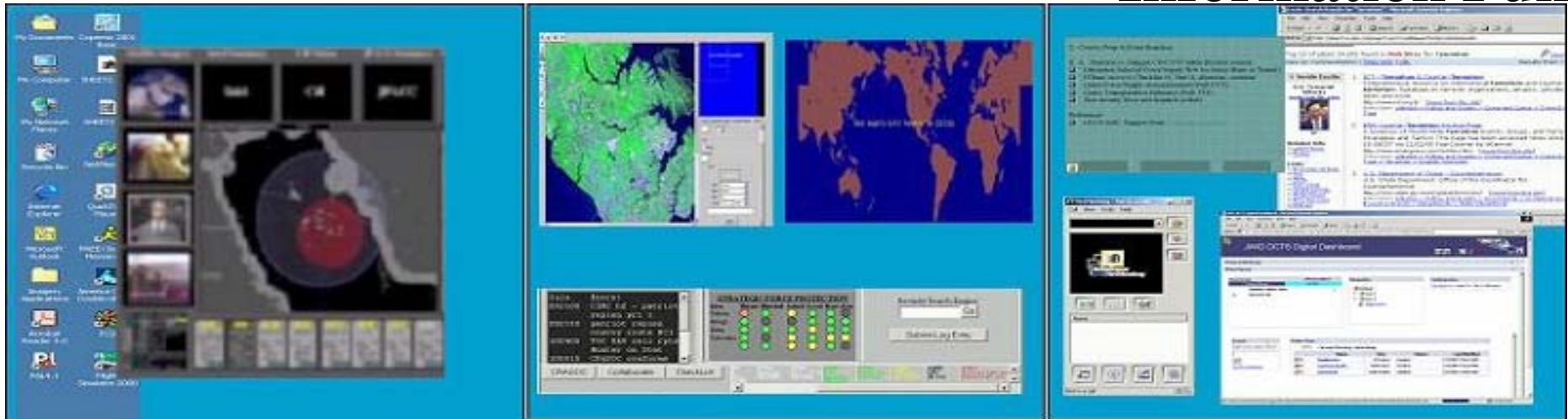
Making the World Safer

Area Security Operations Command and Control (ASOCC)

Information Push

Situational Awareness

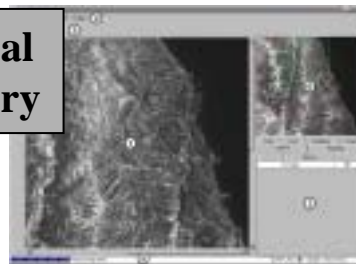
Information Pull



Integrated
View



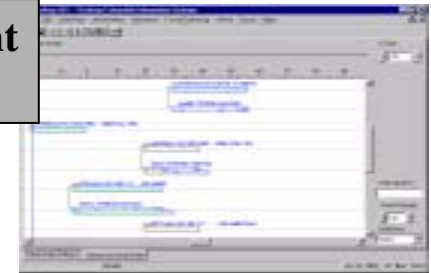
Tactical
Imagery



Data
Fusion



Deployment
Data



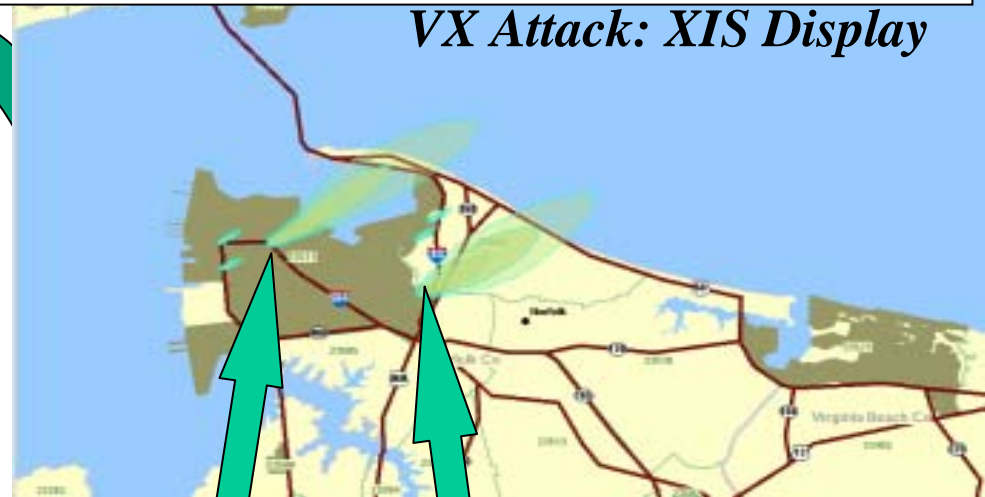
Real-time
Logging



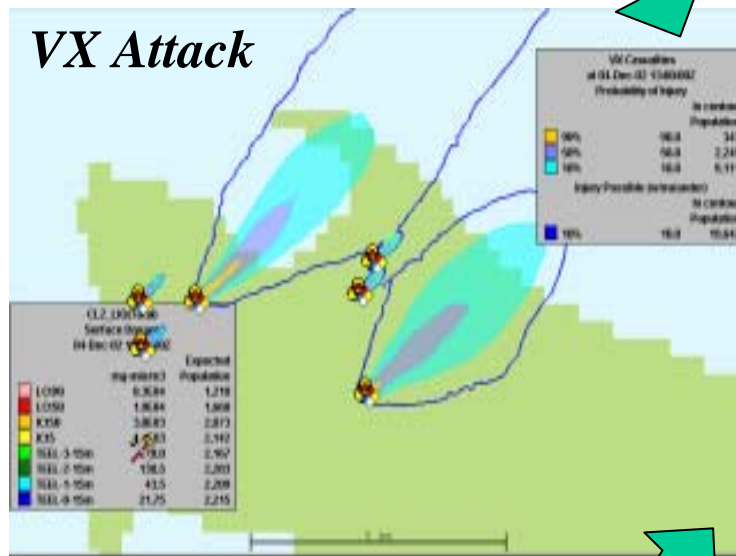
Making the World Safer

Common Operating Picture (COP) Today (DTRA products are compatible in GCCS)

VX Attack: XIS Display



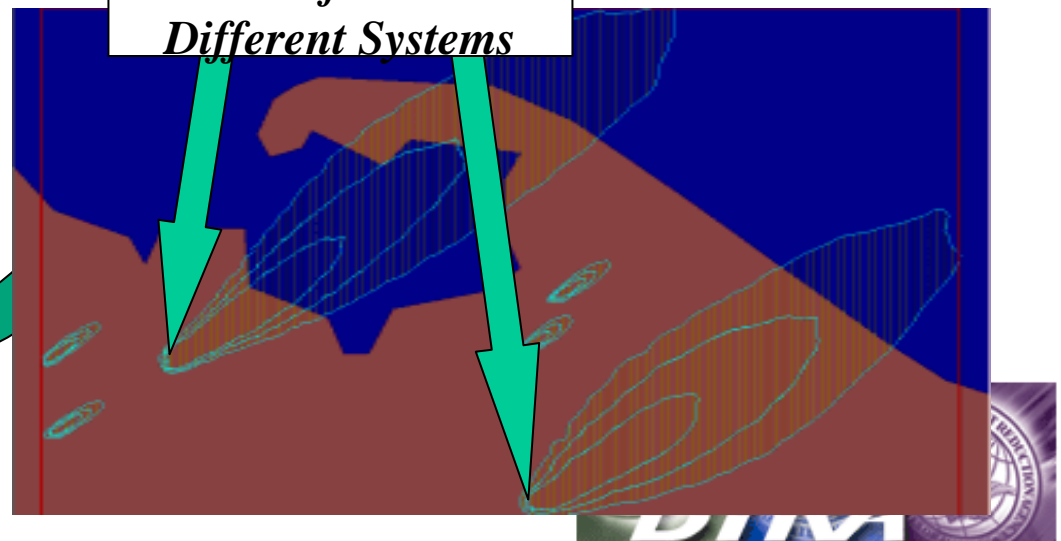
VX Attack



*Today: Use HPAC
Display to merge GCCs
and GIS information*

Example: VX Attack

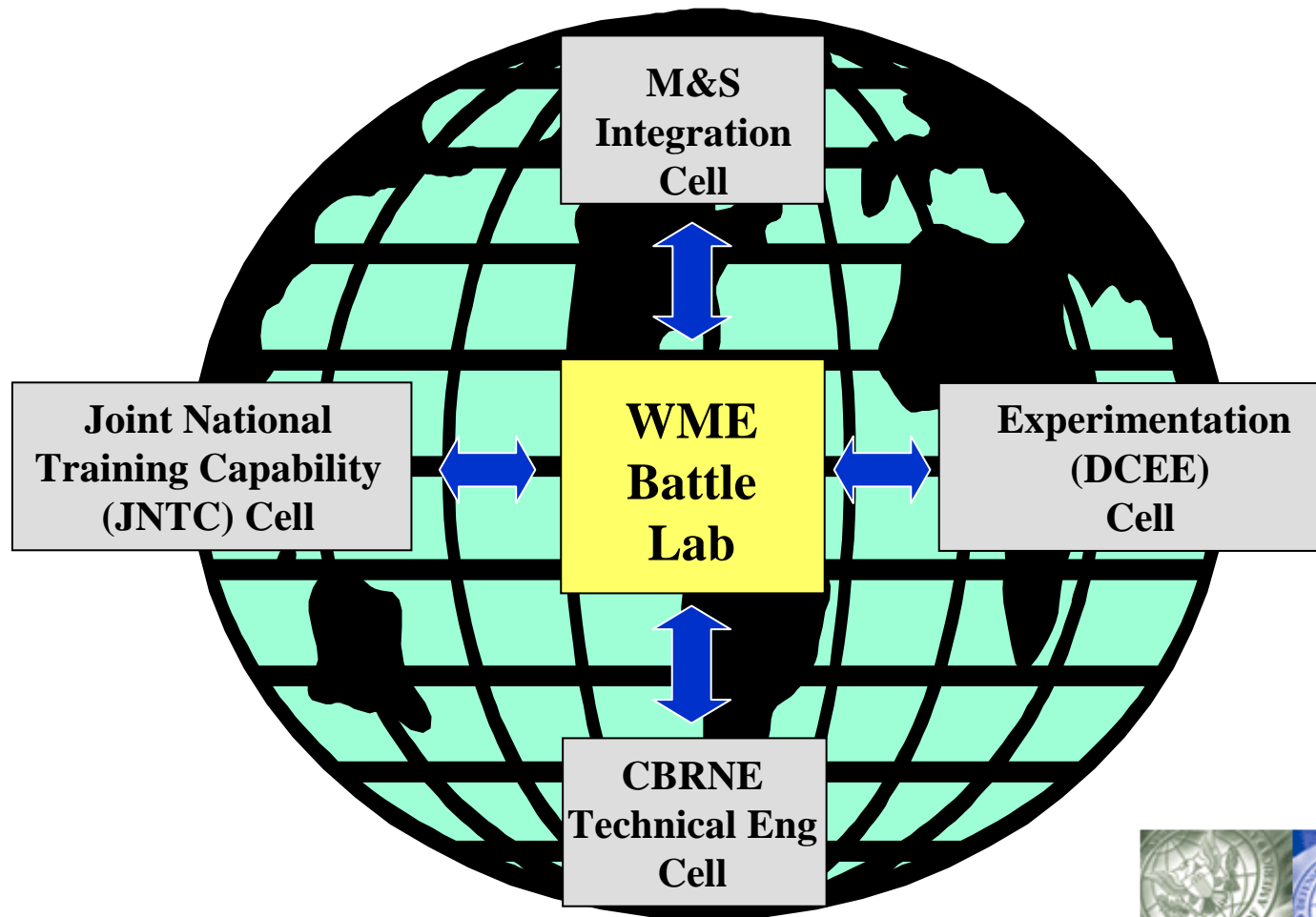
*Same Information
Different Systems*



VX Attack: GCCS, C2PC Display

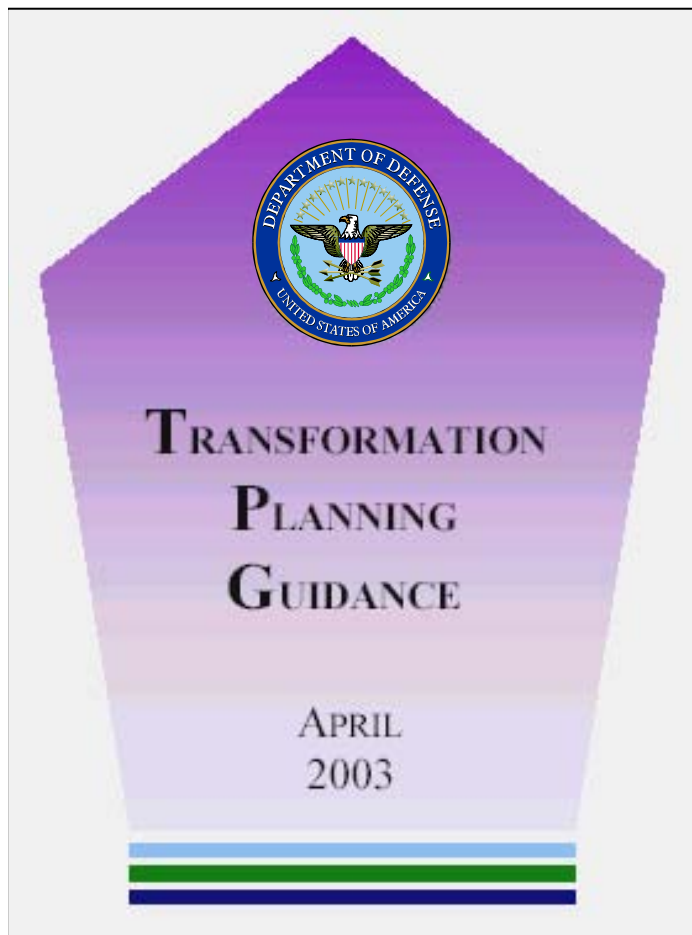
Making the World Safer

DTRA WME Battle Lab Will Support the JNTC and Experimentation



Making the World Safer

Transformation Pillar Three: Joint Concept Development and Experimentation (CDE)



Joint Concept Development and Experimentation Progress Assessments

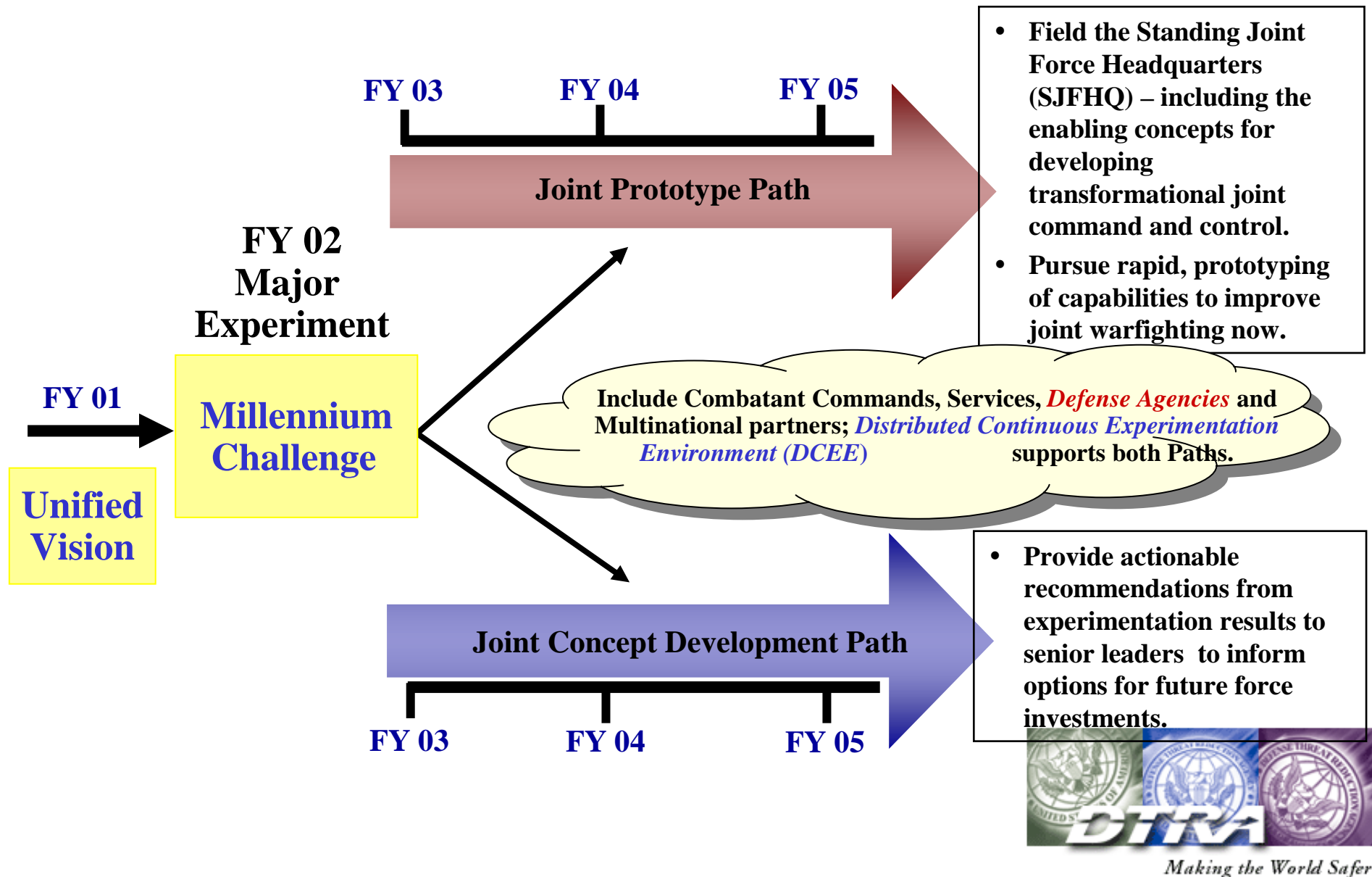
Commander Joint Forces Command (JFCOM) report annually to the SecDef on progress in priority **experimentation areas and adequacy of the following dedicated **experimentation** infrastructures:**

- **War Gaming.**
- **Modeling and Simulation (M&S).**
- **Joint National Training Capability.**
- **Operational Lessons Learned.**



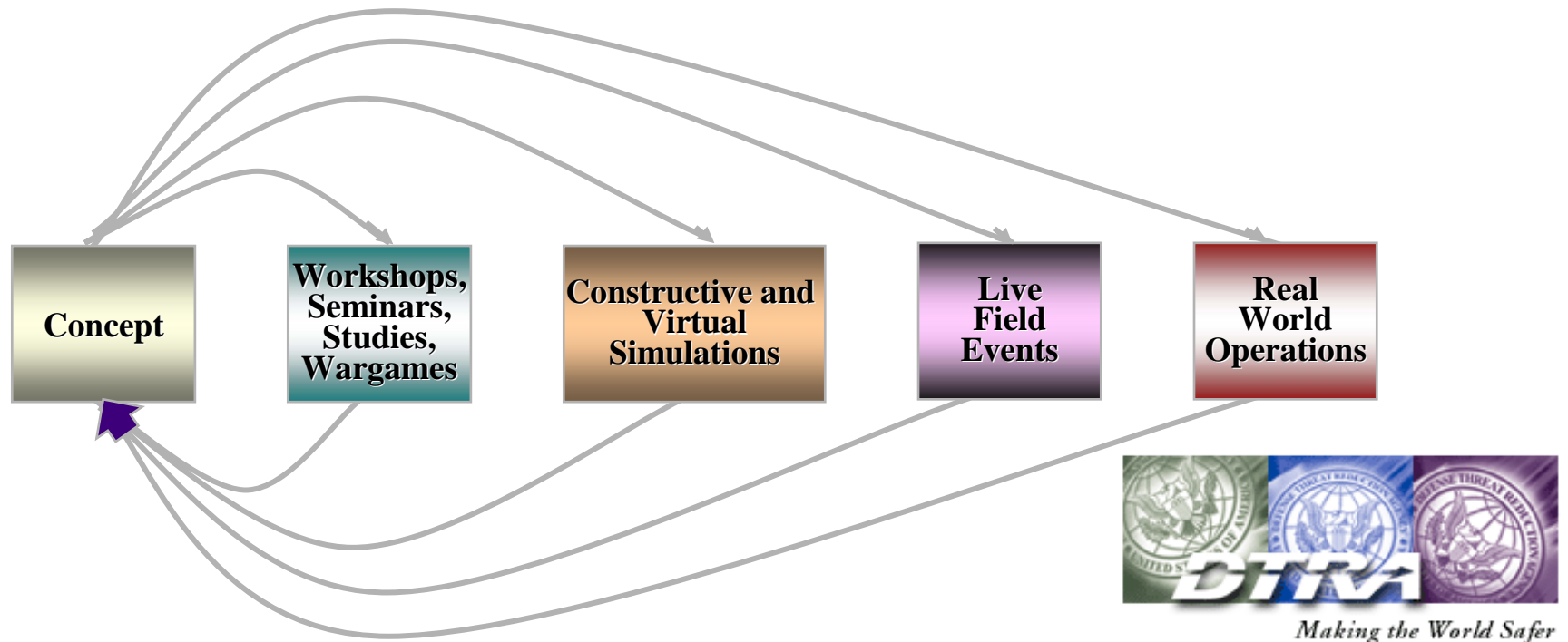
Making the World Safer

JFCOM: Joint Concept Development and Experimentation Strategy

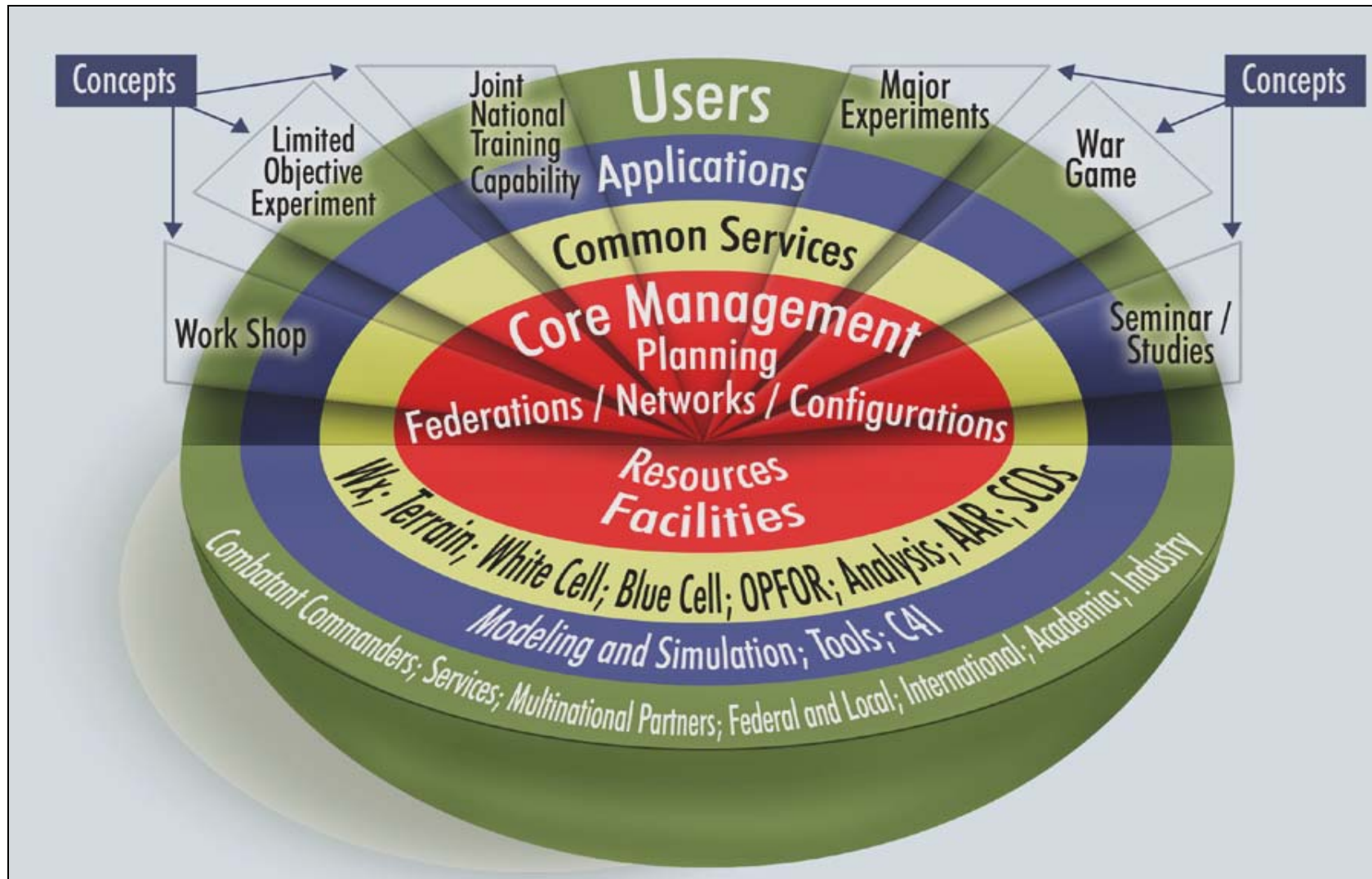


JFCOM: Mission of the DCEE

Provide a continuous, flexible and credible environment to develop, refine and evaluate concepts and technologies in support of transformational activities.

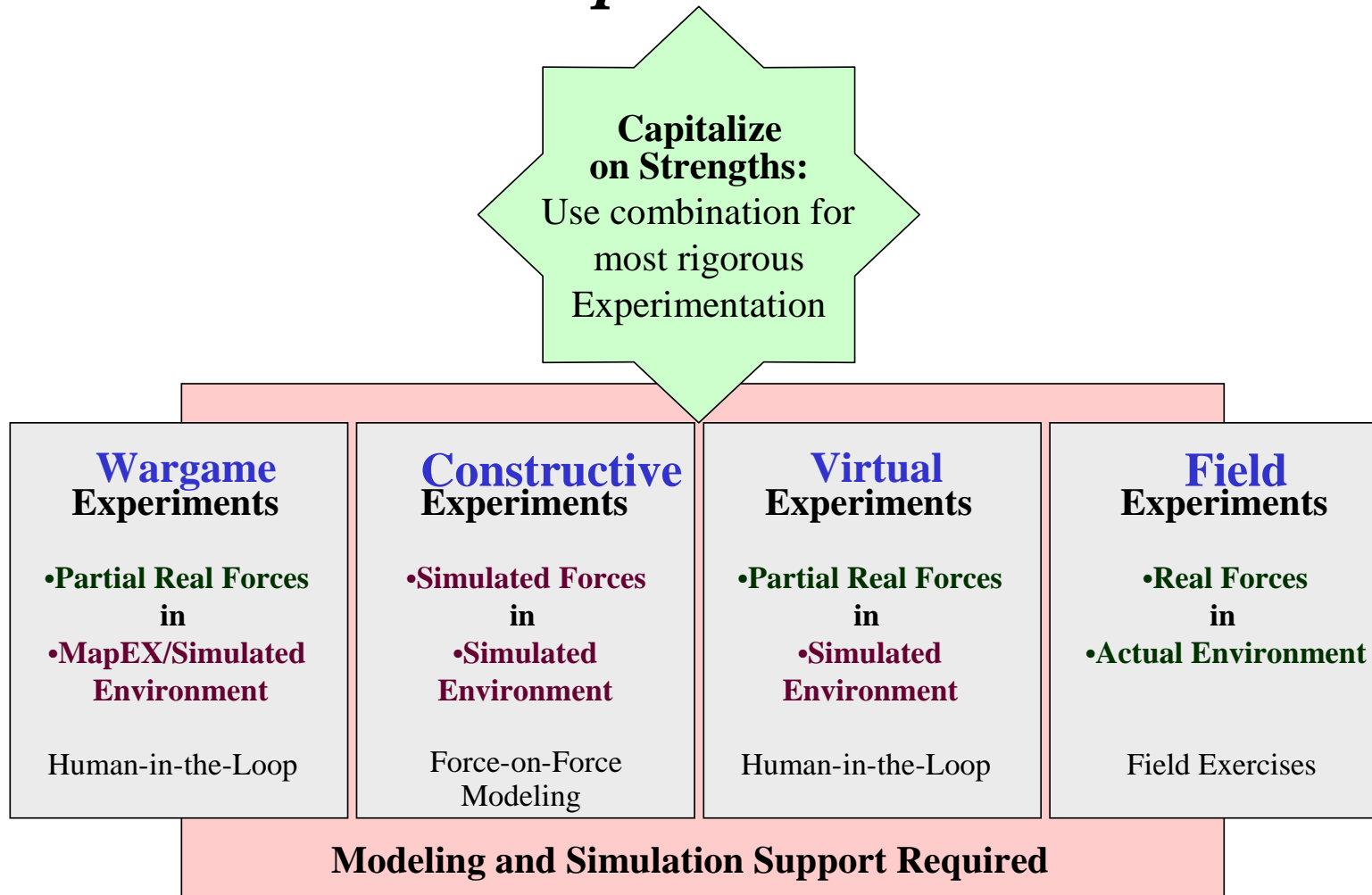


JFCOM: DCEE – Adaptable Environment



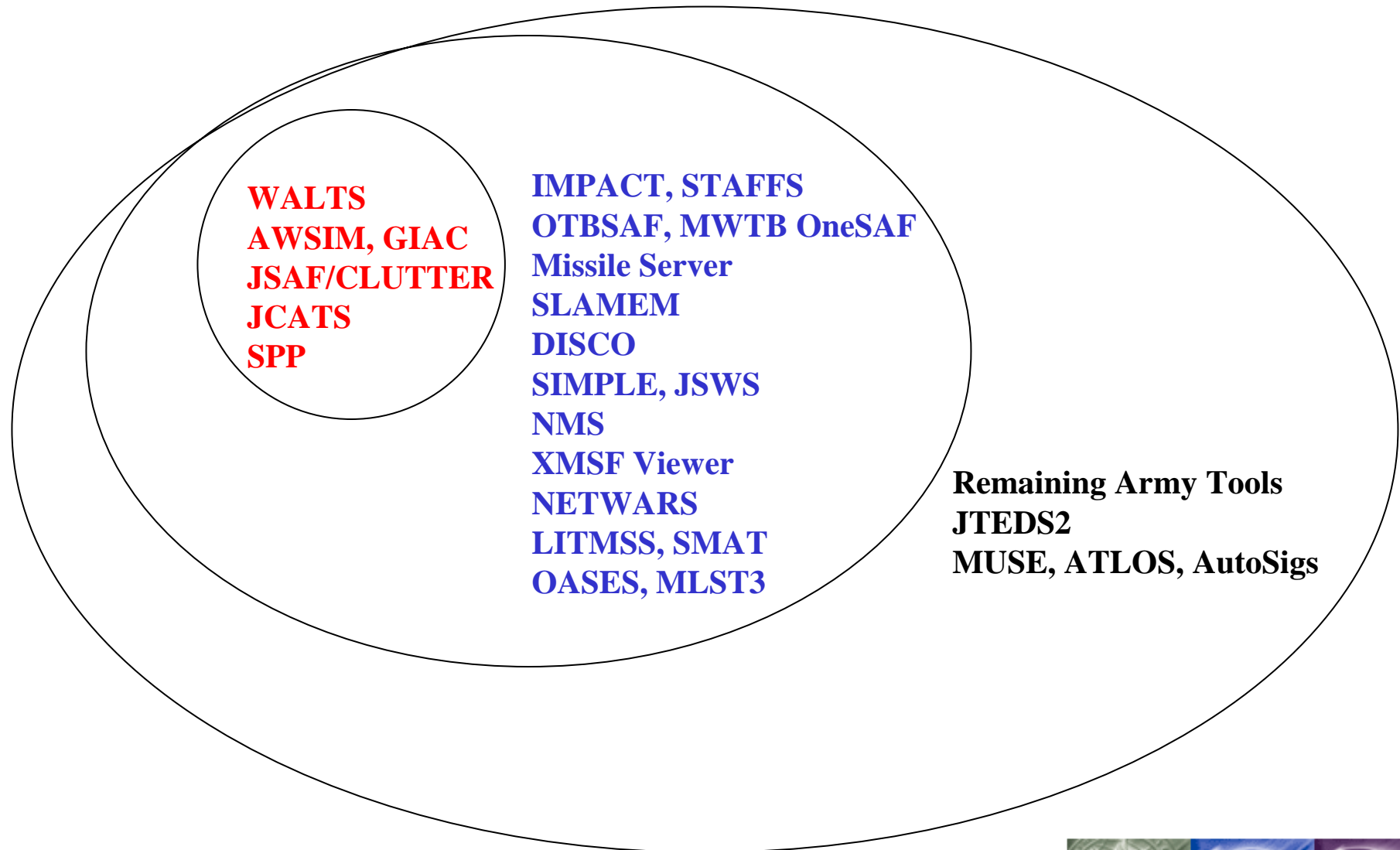
Making the World Safer

DTRA WME Battle Lab Will Support All JFCOM Joint Experimentation Methods



Making the World Safer

Simulation Priority for Initial Connectivity Test



CORE Sims/Tools

Supporting Sims/Tools

All Others



Making the World Safer

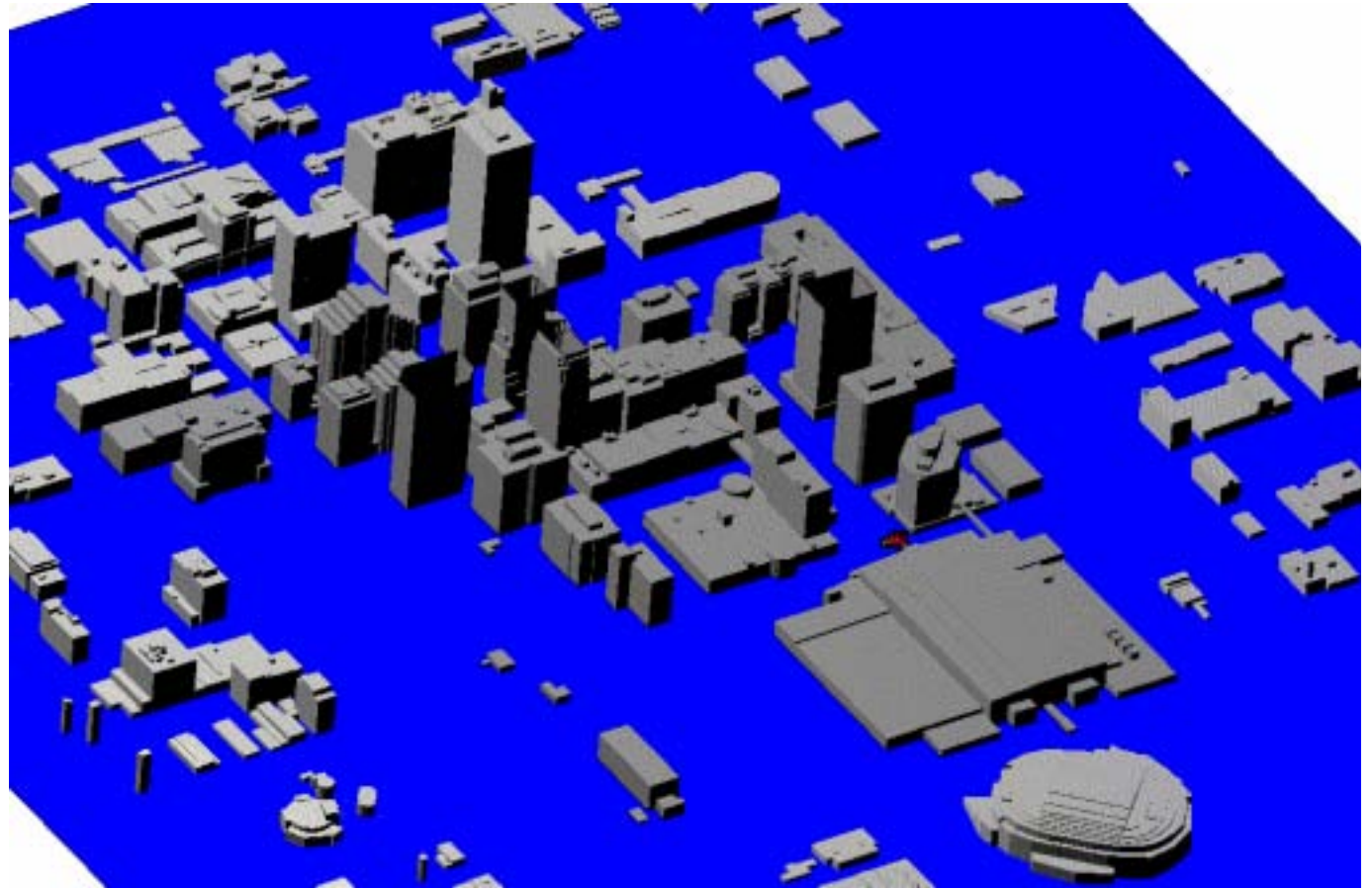
DTRA & DOE Field Trials for Urban Modeling

Small Scale Testing

- **UK - Wind Tunnel and Field Trials**
- **Canada - Water Flumes**
- **Dugway – Mock Urban Setting Test**

Full Scale Testing

- **Salt Lake City – 2000**
- **Joint Urban – Oklahoma City 2003**

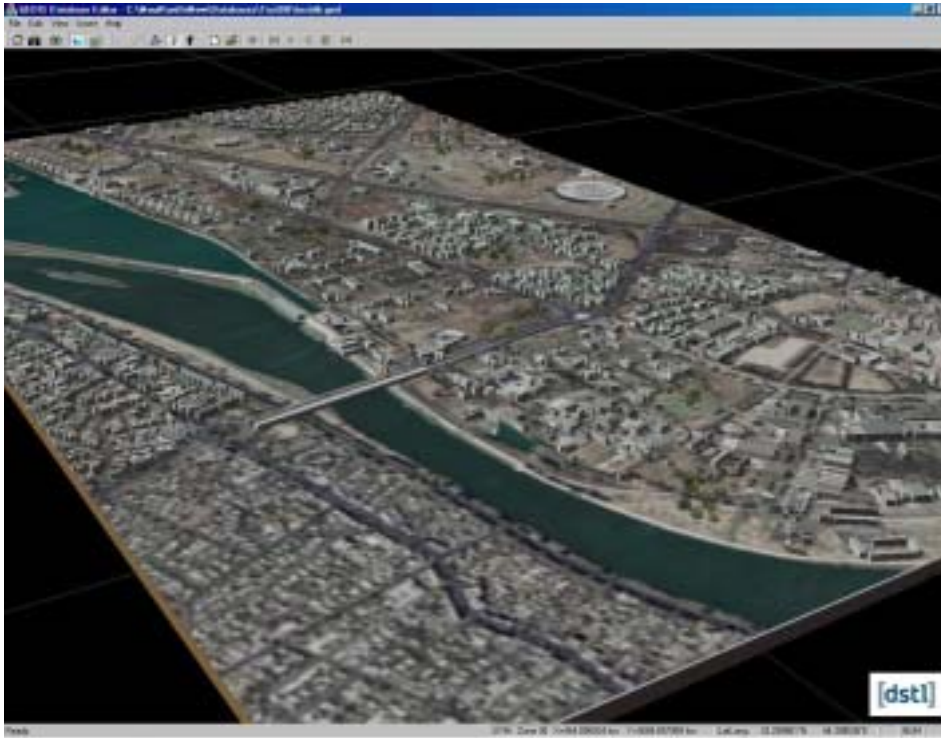


Joint Urban 2003 CFD Calculation

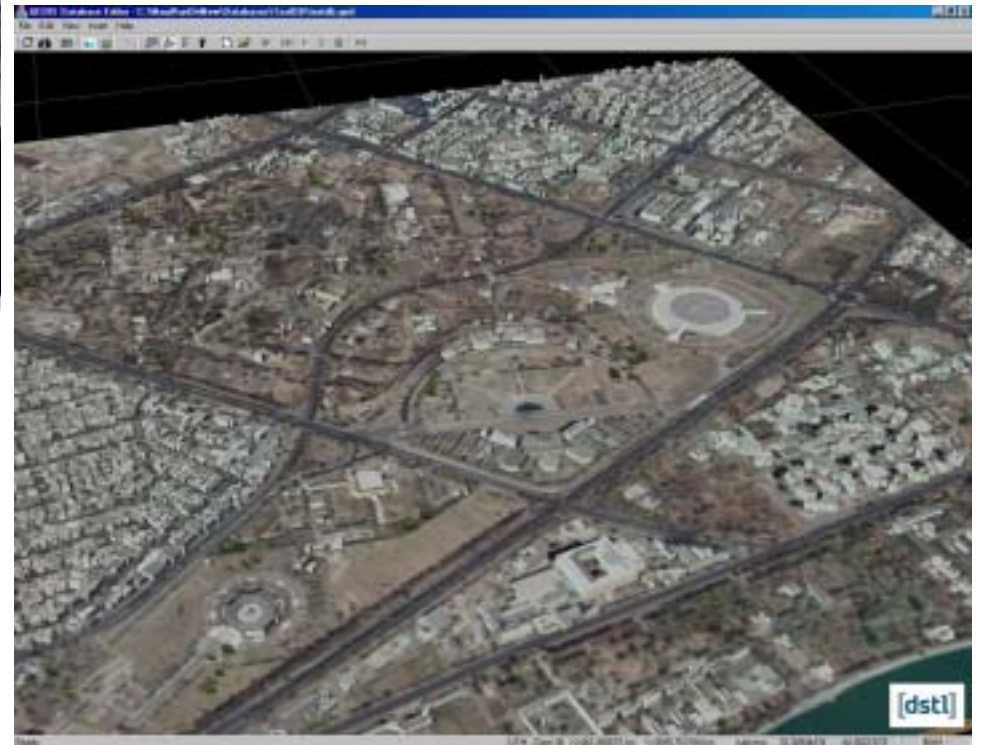


Making the World Safer

Weapons Analysis & Lethality Tool Set (WALTS) Future

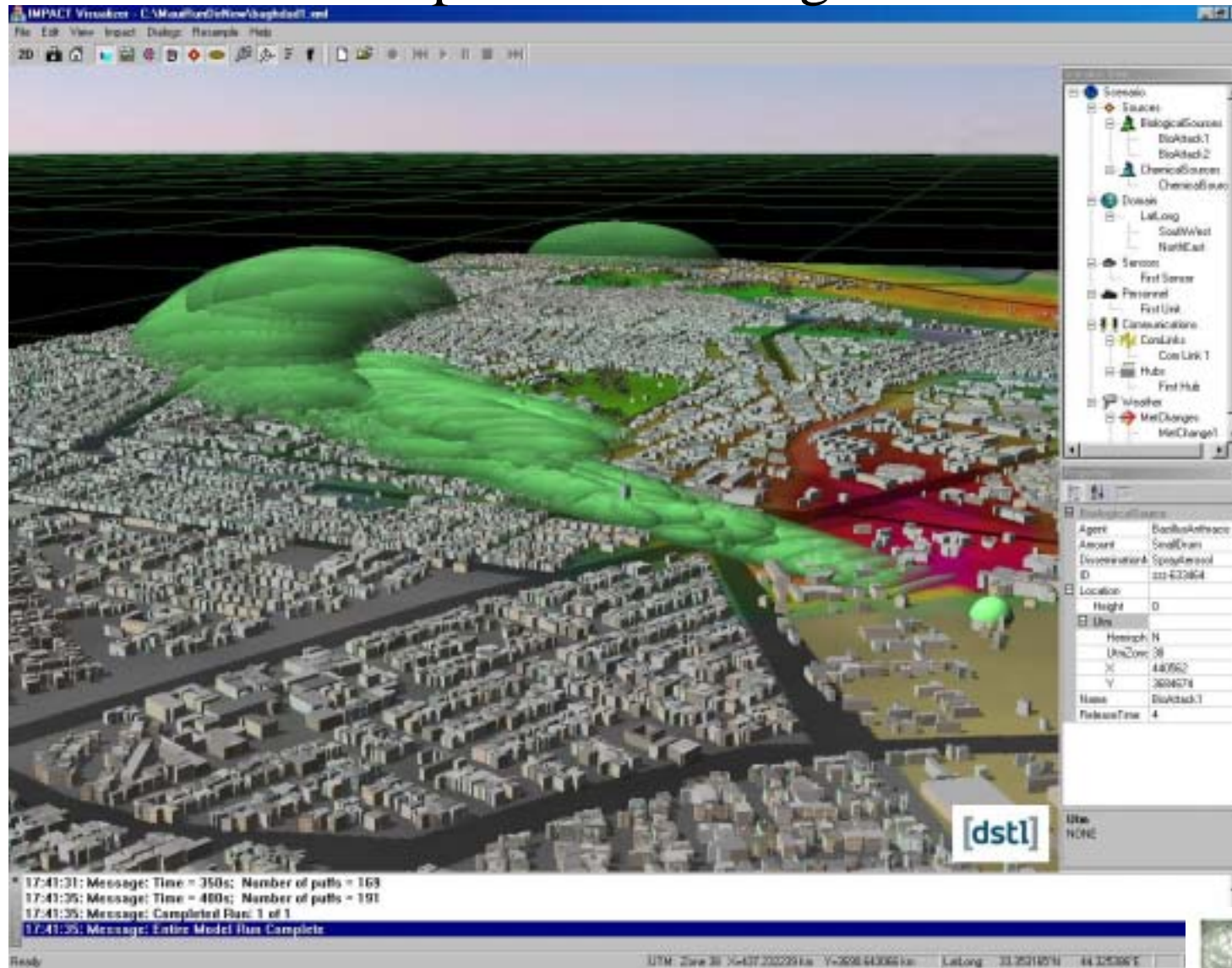


Sample 3-D views of
buildings, trees, and imagery
draped over terrain



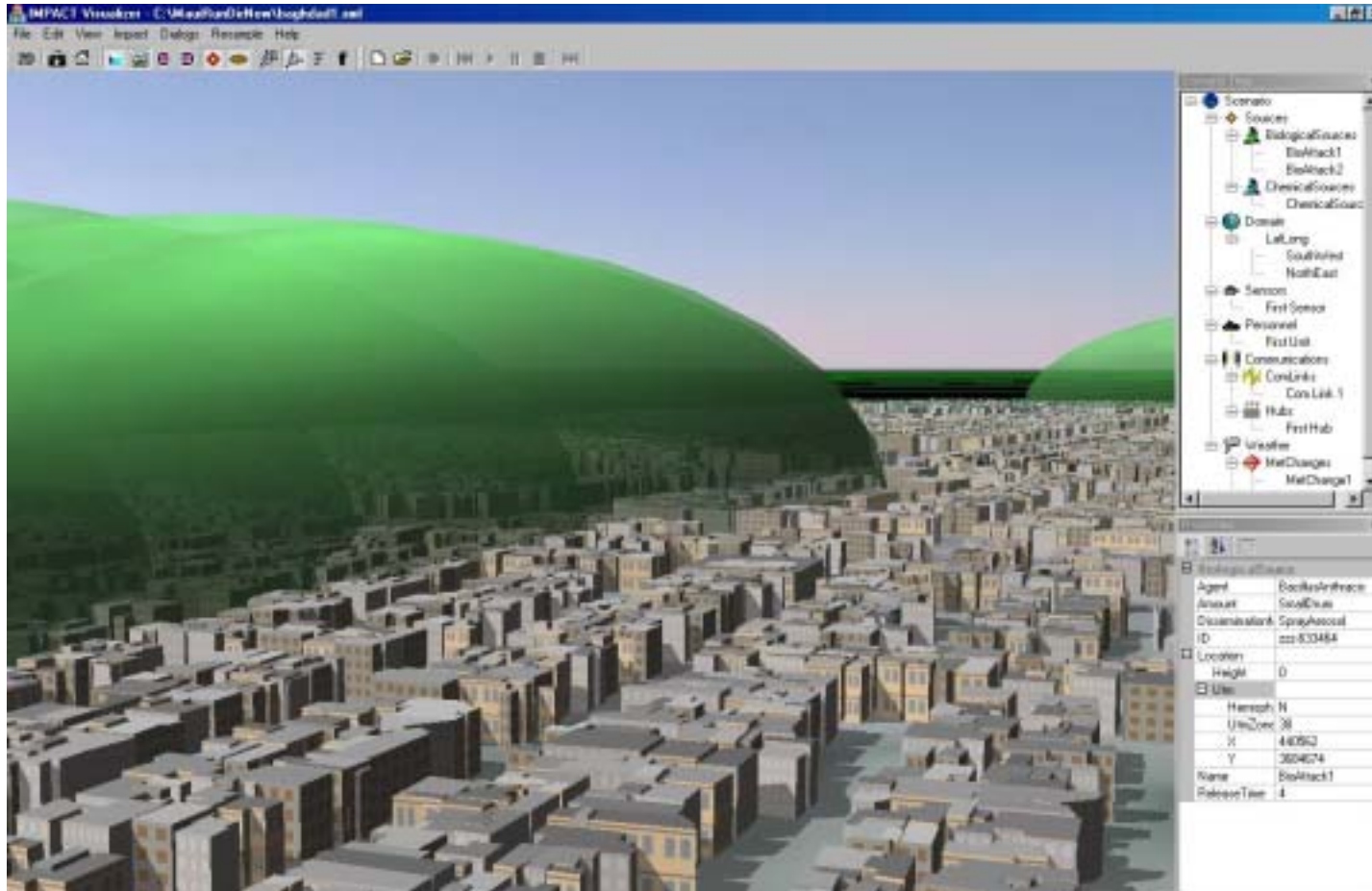
WALTS Future

Closer 3-D view of puffs and dosage around buildings



R&D Initiatives: REASON

Response & Effects Analysis System for Operational Needs



Close up view of plume in urban area



R&D Initiatives:



Making the World Safer

JOEF Phases

Accredited tool to evaluate CBRNW operability at “**fighter-type**” air bases and aerial ports of debarkation

Phase I

Expansion includes **mobile land and littoral forces**. This block provides Output links into manpower, logistics and training planning models

Phase III

Expansion of the scope of JOEF to include seaports of debarkation (**SPODs**) and other land-based fixed site targets (i.e., depots).

Phase II

Address the **near real time, decision support** requirements of war-fighting.

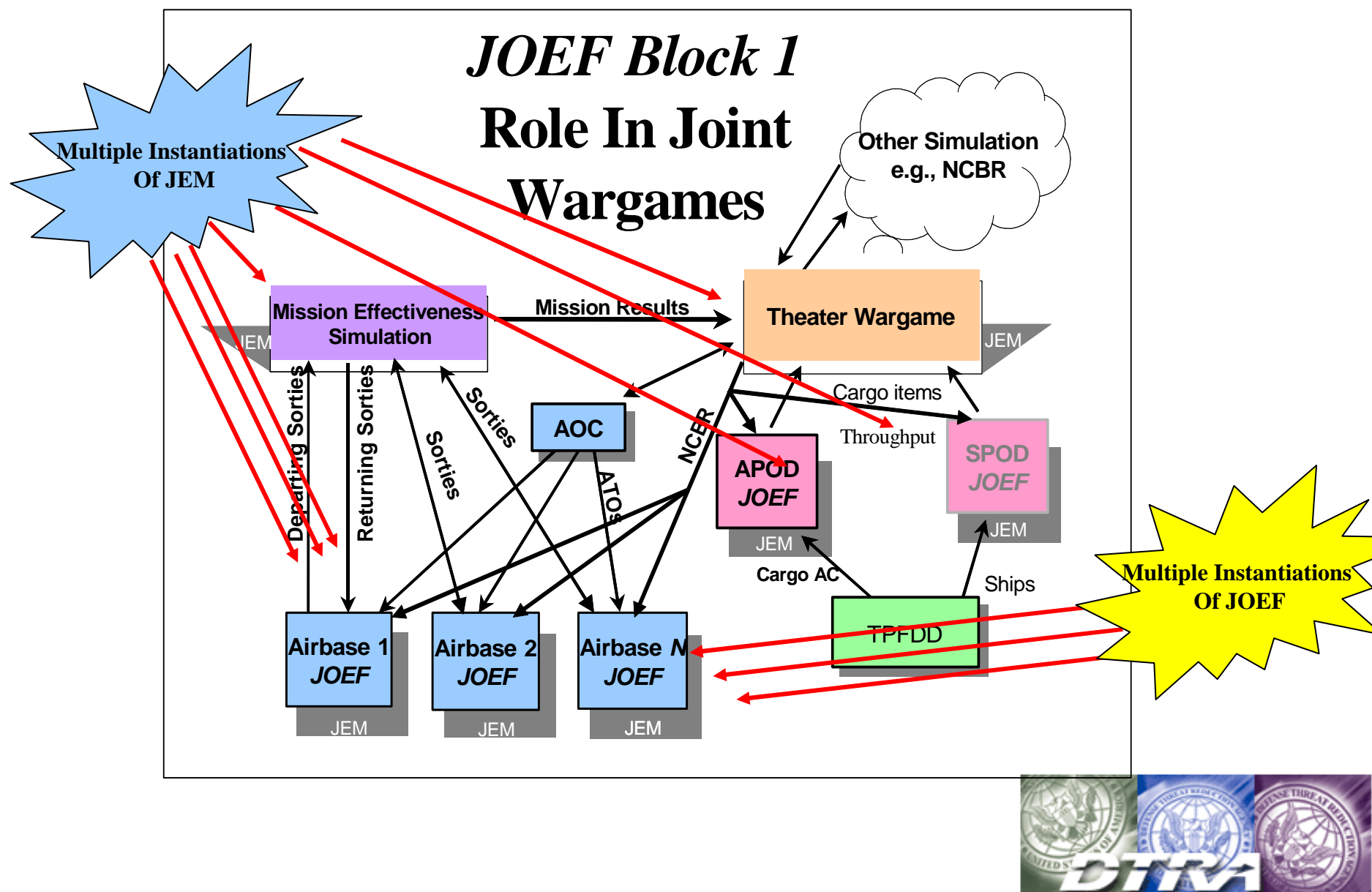
Phase IV

Prototype



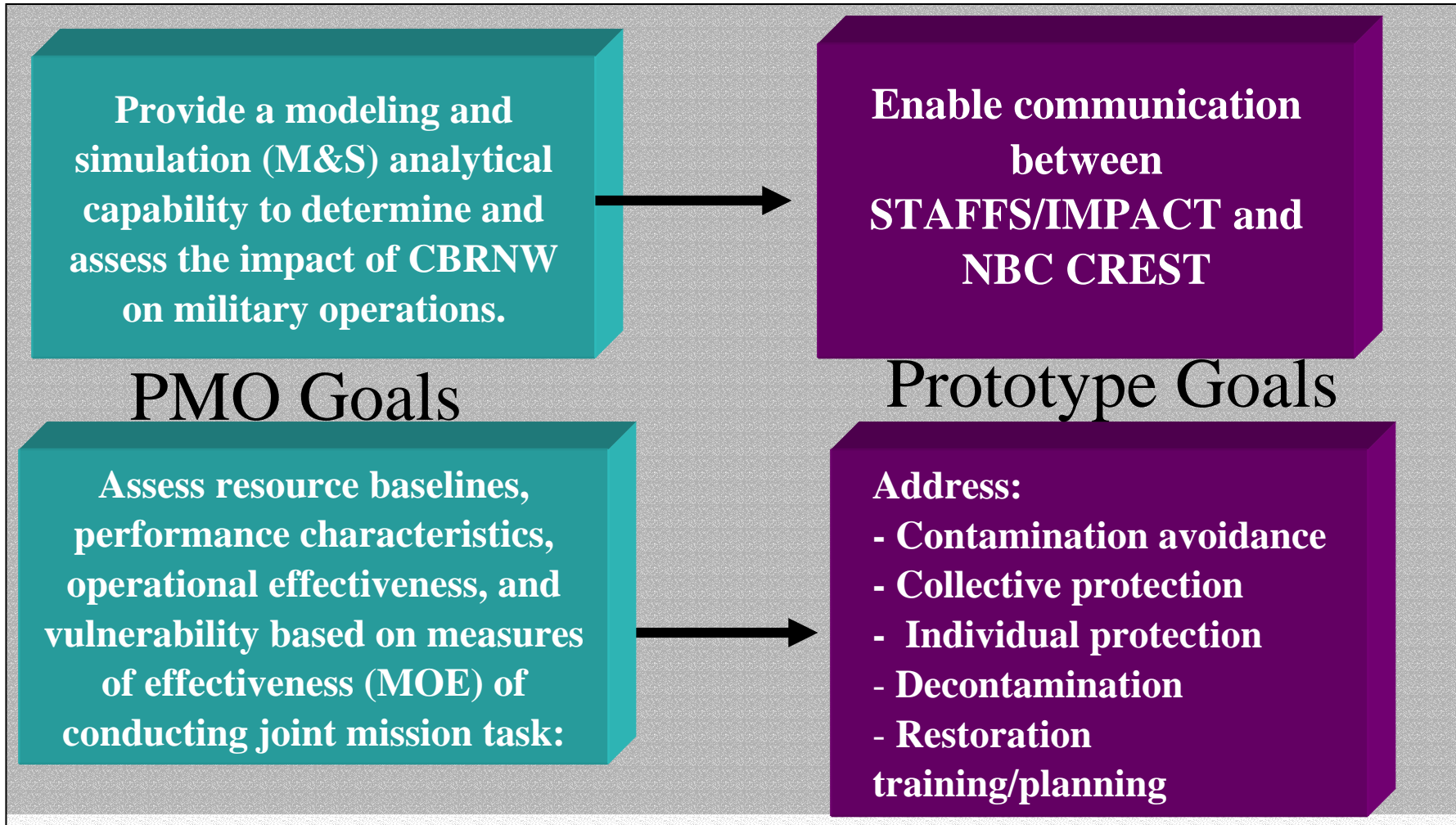
Making the World Safer

Basic Concept of JOEF Capability



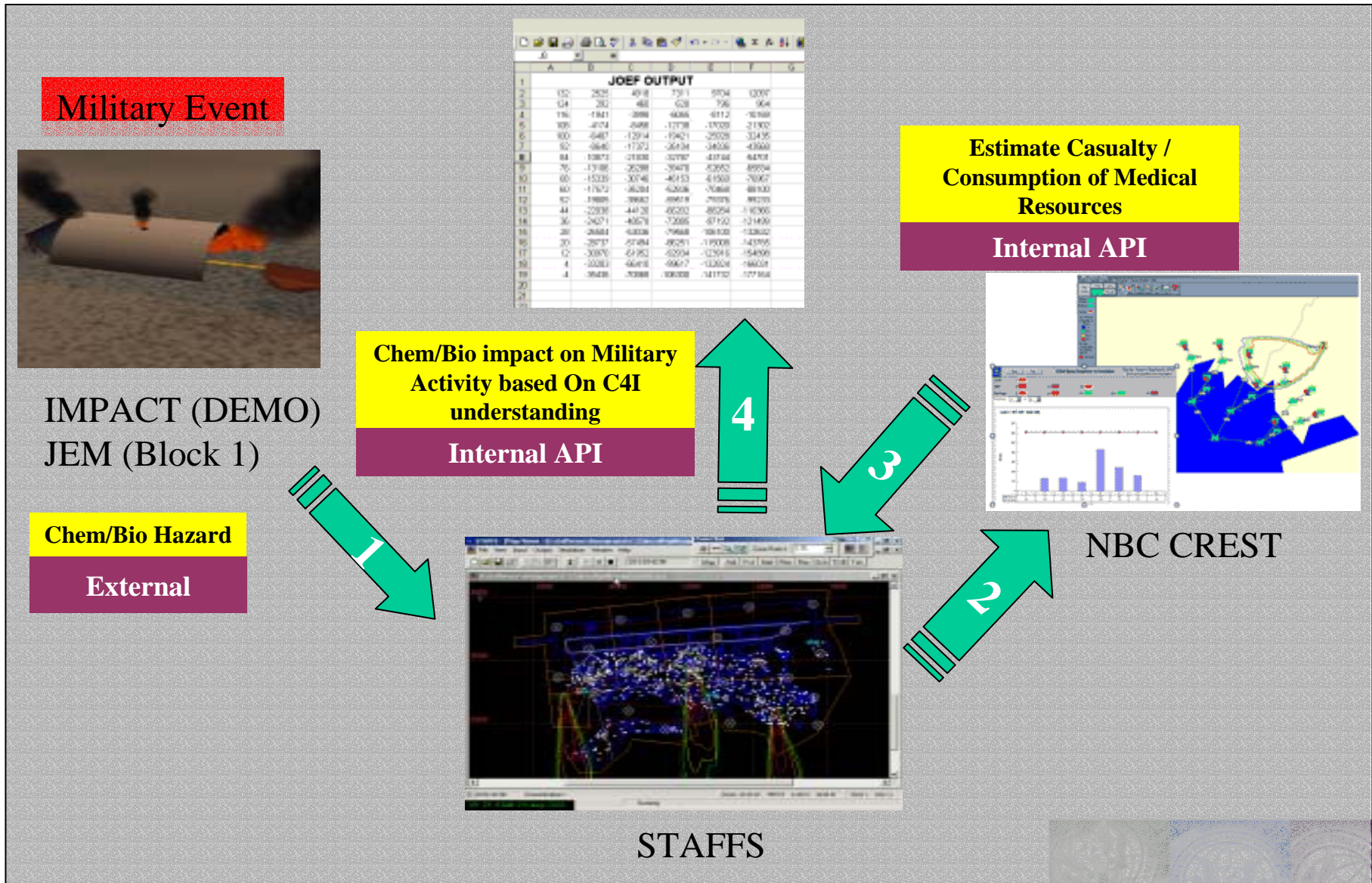
Making the World Safer

Primary Tasks for JOEF Demonstration



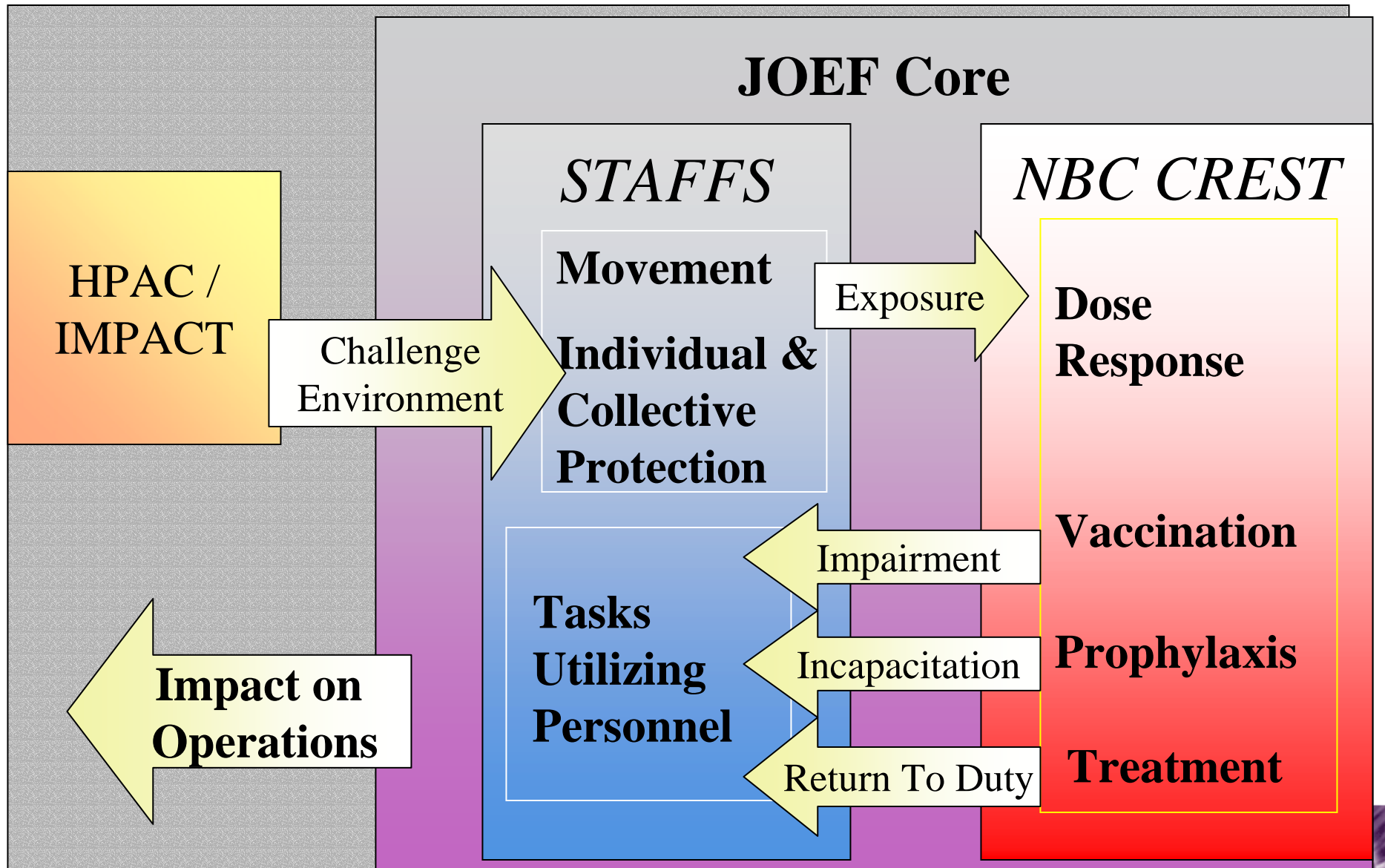
Making the World Safer

Information Flow from Target to Output



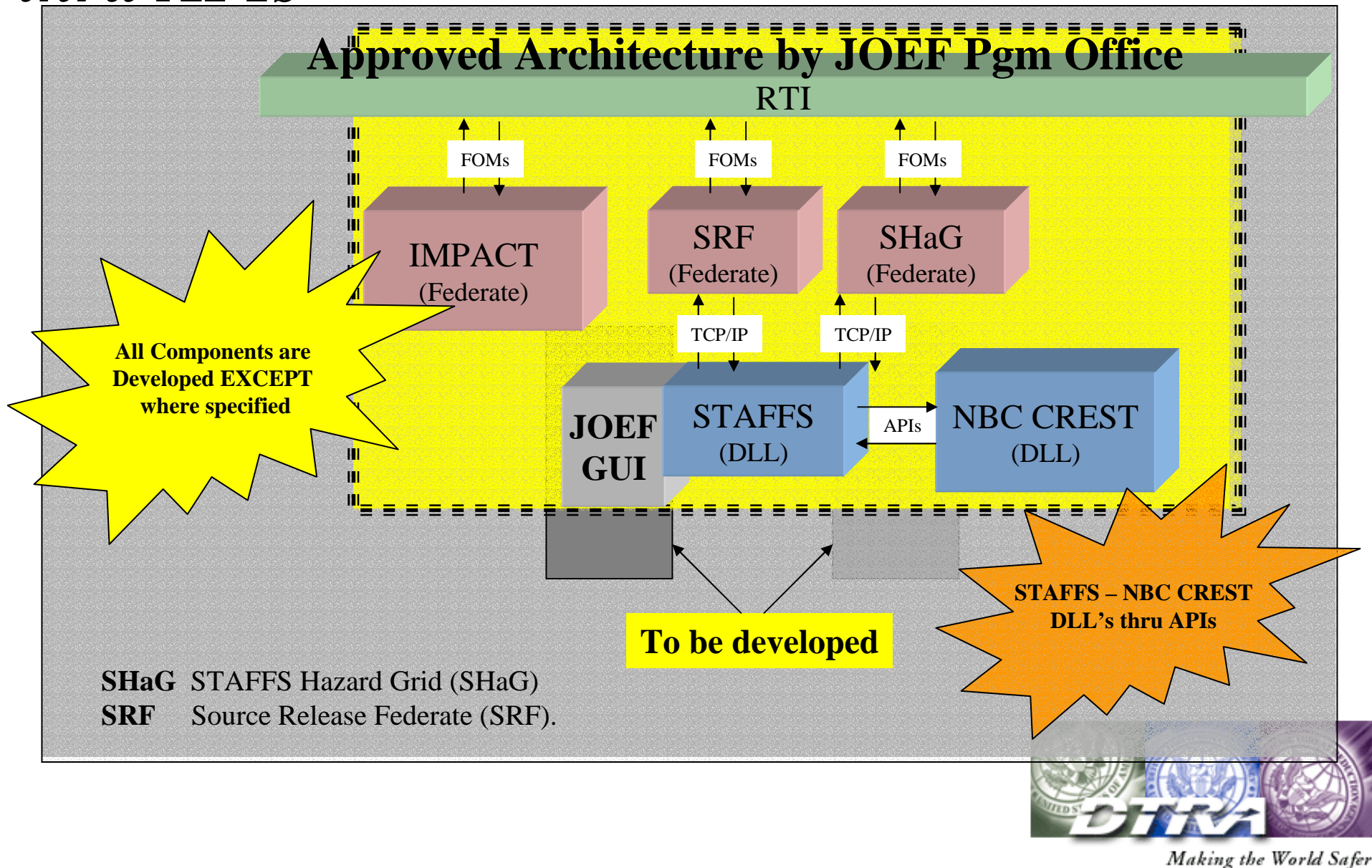
Making the World Safer

Chem-Bio Functions Integration

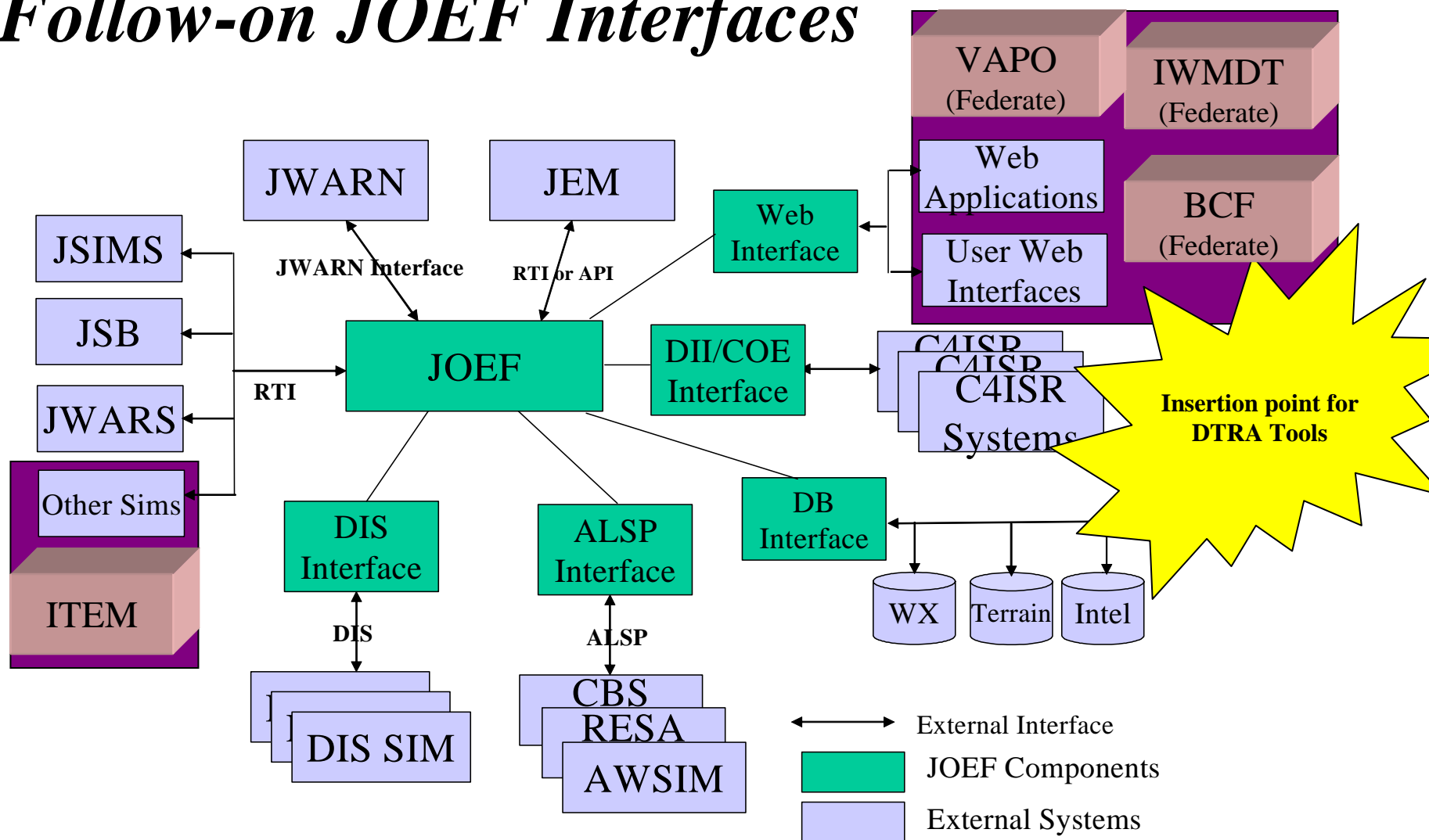


Making the World Safer

Demonstration: Combination RTI / DLLs thru APIs



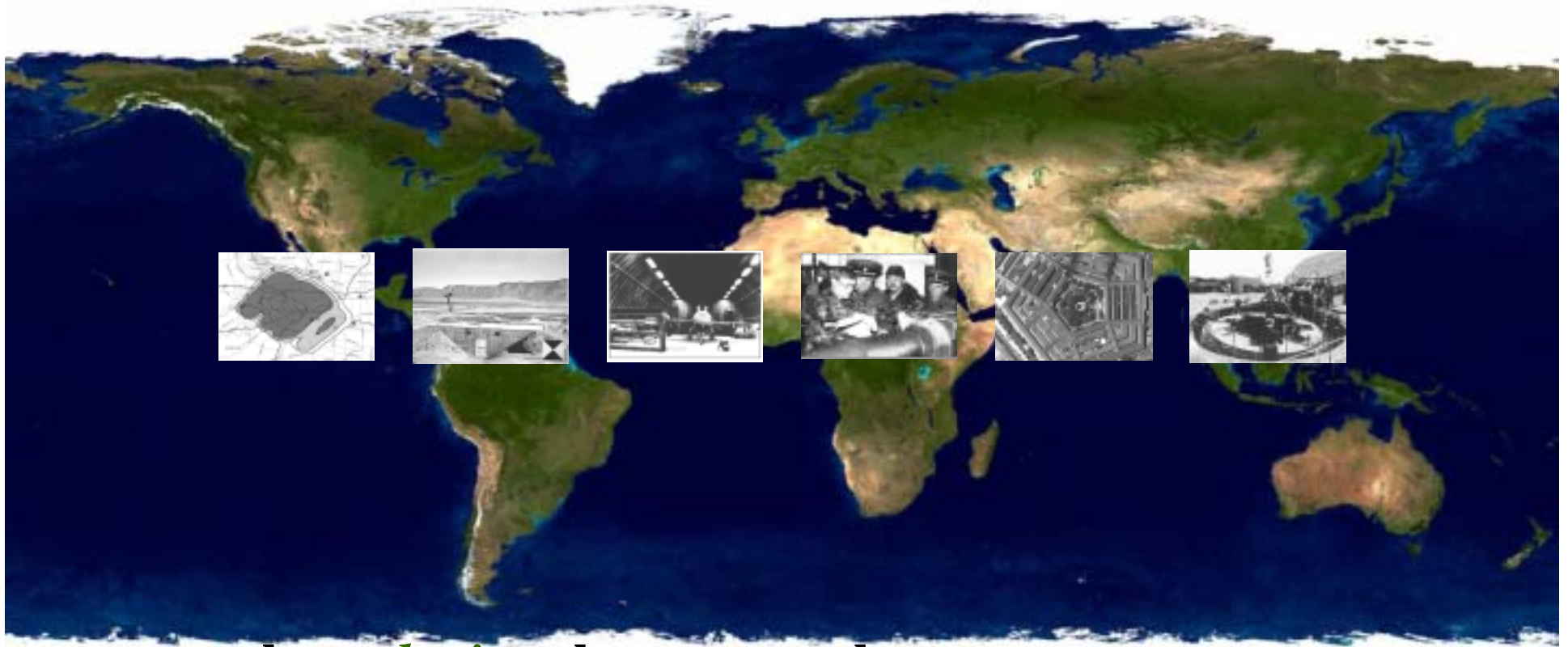
Follow-on JOEF Interfaces



Making the World Safer



Making the World Safer...



...by *reducing* the present threat
and *preparing* for future threats



Making the World Safer